

REMARKS – General

Amendment According To O.A. Page 2, Point 1 - The Objection to Claim 1

Applicant modified Claims 1 according to examiner's suggestion to correct grammar mistakes.

The Rejection of Claim 1-6, 8 and 9 on US 4,571,988 (Murphy Jr.) in view of US 5,535,619 (Brookfield) Is Overcome

The last O.A. page 2, point 3 rejected claims 1 on US 4,571,988 (Murphy Jr.) in view of US 5,535,619 (Brookfield). Applicant respectfully requests reconsideration of this rejection, for the following reasons:

(1) Applicant really can not find anywhere in Murphy Jr. that is equivalent to (e) in current application claim 1. (e) in current application claim 1 is: means for suspending said bob comprising:

(1) at least two axially disposed sleeves that do not directly contact with each other and said sleeves are arranged so that at least one of said sleeves is mounted on a stationary frame, and at least one of the other sleeves directly or indirectly connecting to a portion of said bob, and moves together with said bob,

(2) one or more leaf springs that hold said sleeves together, and at least some of said leaf springs have their two ends connected to two different said sleeves.

Items 96 and 76 in Murphy Jr. mentioned in OA page 2 point 3 are not for suspending bob.

Instead, item 96, (drive sleeve, Column 5, line 26) is to drive lower sleeve to rotate. Obviously, item 96 is equivalent to "(b) means for driving said rotor to rotate " in current application claim 1.

Additionally, item 76, (upper sleeve, Column 5, line 14) is thread to item 70 and 78. Then item 76 is attached to item 96 by a set screw (Column 5, line 21-22) and rotates together with item 96. Obviously, item 76 is equivalent to (b) or (a) in current application claim 1.

(2) The spring clip (Column 2) in Brookfield that mentioned in last O.A. page 3 line 9 is functionally equivalent to thread 45 in current application. They both attach a bob to a bob shaft. The spring clip in Brookfield has nothing to do with (e) in current application claim 1 because it does not suspend bob at all. Instead the torsion assembly in Brookfield is equivalent to (e) in current application claim 1. "The torsion assembly has three rods TR as in state-of-the-art TT brand instruments (Brookfield Engineering Laboratories, Inc.). A sealing bube SW, sealed into assembly 45 at 45-1, surrounds the read-out wire 40" (Column 3 line 7-10). However, Brookfield does not disclose any sleeves held together by leaf spring.

(3) The sleeves held together by leaf spring in current invention functions much better than the flexural bearing in Murphy Jr. while can be installed much easier. In Murphy Jr., "When the angle of rotation is restricted to less than about two degrees, the intersection 30 of the strips 22, 24 will not be appreciably shifted from the center of rotation A and the spring may be employed in an accurate force or torque measuring device" (Column 4, line 36-40). However, the relative rotation of sleeves held by leaf springs in current invention is inherently self-centering. Also the sleeves held together by leaf spring in current invention can undertake much more overload comparing to the flexural bearing in Murphy Jr. Additionally, the sleeves held together by leaf spring in the current invention can be installed very conveniently by inserting into a bore hole, while the flexural bearing in Murphy Jr. is very difficult and complex to be installed with good alignment. Finally, the assembly that suspends the bob in Murphy Jr. is much more expensive to be manufactured than the sleeves in current application because it involves many mechanical parts with complex geometry and tight tolerance.

(4) US 4,571,988 (Murphy Jr.) is never commercially available while M5500 rheometer from Grace Instrument Company manufactured according to the principle of current application is commercially very successful.

(5) Neither US patent 4,571,988 nor US patent 5,535,619 contains any suggestion (express or implied) that they can be combined, or that they can be combined in the manner suggested.

(6) Each invention from US patent 4,571,988 nor US patent 5,535,619 is complete and functional in itself, so there would be no reason to use parts from or add or substitute parts to any one.

The Rejection of Claim 7 on US 4,571,988 (Murphy Jr.), US 5,535,619 (Brookfield) and In Further View of US 5,763,766 (Robinson) Is Overcome

Since applicant believe claim 1 is feasible, and all other claims are based on claim 1, the objections to other claims should not be a problem if an agreement can be reached with examiner on claim 1. Thus applicant will not discuss objection on other claims.

Applicant sincerely hope examiner reconsider page 6, point 8 response to arguments

Applicant agrees with examiner on the guideline of patents on page 7, line 5-8. However, applicant hopes examiner can also consider:

- 1). All mentioned prior arts are obviously remotely different from current application.
- 2). US patent 4,571,988 is about 20 years old. Brookfield has been making many viscometers , including US patent 5,535,619, based on the torque tube in US patent 4,175,425, which is 26 years old. Furthermore, viscometer/rheometer business is a crowded and extremely competitive business. Nobody has made any major improvement on those designs since then. Obviously the definition of "ordinary skill in the art" can not be set so rare that it takes him 20 years to get a better design.
- 3). The previous examiner thought current application should be protected individually instead of combining with my other non-contact sensor invention.
- 4). Back to the very basic point, applicant still have not found anything in cited references that is similar to "sleeves held together by leaf springs to suspend bob".

Conclusion

For all of the above reasons, applicant submits that the specification and claims are now in proper form, and that the claims all define patentably over the prior art. Therefore applicant submit that this application is now in condition for allowance, which action applicant respectfully solicit.

Applicant respectfully requests that a timely Notice of Allowance be issued in the case.

Conditional Request For Constructive Assistance

Applicant has amended the specification and claims of this application so that they are proper, definite and define novel structure which is also unobvious. If, for any reason this application is not believed to be in full condition for allowance, applicant respectfully request the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. § 2173.02 and § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,

A handwritten signature in black ink, appearing to read 'Bi Hongfeng', written in a cursive style.

Hongfeng Bi

----- Applicant Pro Se -----

888 W Sam Houston Parkway, S

Suite 125

Houston, TX 77042

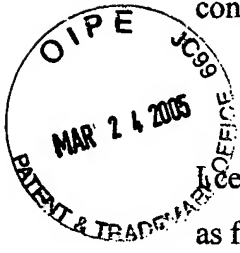
Tel (713)783-1560; Fax (713)974-7144

Certificate of Mailing: I certify that on the date below this document and referenced attachments, if any, will be deposited with the U.S. Postal Service as first class mail in an envelope addressed to "Box AF, HONORABLE COMMISSIONER FOR PATENTS, P.O. Box 1450, Alexandria, VA 22313-1450."

Mar. 24, 2005

A handwritten signature in black ink, appearing to be 'H. Bi', written over a horizontal line.

Hongfeng Bi, Applicant



Certificate of Mailing

I certify that his correspondence will be deposited with the United States Postal Service as first class mail with proper postage affixed in an envelope addressed to: "Box AF, Honorable Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" on the date below.

Date: 2005, Mar. 24

Hongfeng Bi, Applicant

A handwritten signature in black ink, appearing to be "Hongfeng Bi".